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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,915	10/04/2004	Iwao Miyano	529.44144X00	4476
20457	7590	10/19/2005		
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			EXAMINER SANEI, MONA M	
			ART UNIT 2882	PAPER NUMBER

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/509,915	<b>Applicant(s)</b> MIYANO, IWA0	
	<b>Examiner</b> Mona M. Sanei	<b>Art Unit</b> 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/04/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                         |                                                                             |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                                |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____                                                             | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Specification*

The disclosure is objected to because of the following informality: Page 7, lines 19-21, states the following: "... the rotation range is wider than it this 45° ..." This minor draft error can be amended by removing "it this" of the previous statement.

Appropriate correction is required.

### *Claim Objections*

Claim 1 is objected to because of the following informality: Line 18 states the following, "... supported by the support means and the support means ..." This minor draft error can be amended by deleting "and the support means" of the previous statement.

Claim 6 is objected to because of the following informality: The last line states the following, "... an image calculating processing." This minor draft error can be amended by replacing "processing" of the previous statement with "process."

Claim 7 is objected to because of the following informality: Line 2 states the following, "said holding means in a rotative arm." This minor draft error can be amended by replacing "in" of the previous statement with "is."

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-5 and 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Virta et al. (6,466,641).

With respect to Claim 1, Virta et al. teaches an apparatus comprising:

an x-ray generating means for generating an x-ray (Col. 6, lines 19-22; Figs. 1, 3-4, 17, 19, & 21-25B, #10);

an x-ray detecting means (Col. 6, lines 22-24; Figs. 1, 3, 4, & 23-25B, #20 & #20') arranged opposite to the x-ray generating means (Col. 4, lines 36-39; Figs. 17 & 19) for two-dimensionally detecting an x-ray dose (Col. 10, lines 54-59) which is transmitted through an object (Col. 8, lines 7-11; Figs. 8 & 9) to be examined;

holding means for holding the x-ray generating means and the x-ray detecting means so that the object is positioned therebetween (Col. 4, lines 36-39; Figs. 2-7C, 13, 15-20, & 23);

first rotation driving means (drive motor, Col. 7, lines 15-18; Figs. 4-7C, #23) for driving the holding means to rotate (Col. 7, lines 24-31) on a locus of movement around the object (Col. 3, lines 61-67);

support means (third body part, Col. 6, line 54 to Col. 7, line 10; Figs. 2-4, 6A-14B, 16, 18, and 21-22, #14) for supporting the first rotation driving means;

image processing means for producing an image of the object on the basis of the x-ray dose detected by the x-ray detecting means (Col. 10, lines 51-61);

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image display means for displaying the image produced in the image processing means (Col.10, lines 51-61);

further comprising;

second rotation driving means (drive motor, Col. 7, lines 15-18; Figs. 4-7C, #22) to integrally rotate the holding means supported by the support means **and the support means** in a manner such that the rotation center of the second rotation driving means is parallel with the rotation center of the first rotation driving means (Col. 11, lines 55-59) and is located at a different position from that of the first rotation driving means (as shown in Figures 6A-7C); and

drive control means for controlling the first rotation driving means in a first imaging mode (Col. 7, lines 35-38; Figs. 6A-6C) and separately controlling the first rotation driving means and the second rotation driving means in a second imaging mode (Col. 7, lines 50-53; Figs. 7A-7C).

With respect to Claim 2, Virta et al. discloses a drive control means (Col. 7, lines 12-31) performing control for the execution of each of the first imaging mode and the second imaging mode (Col. 1, lines 27-33).

With respect to Claim 3, Virta et al. discloses an image processing means (Col. 10, lines 51-61) reconstructing a two-dimensional tomographic image or a three-dimensional image of the object in the first imaging mode [(Col. 3, lines 20-24) and (Col. 7, lines 35-38; Figs. 6A-6C)], and reconstructing a panoramic image of the object in the second imaging mode [(Col. 7, lines 32-35) and (Col. 7, lines 50-53; Figs. 7A-7C)].

With respect to Claim 4, Virta et al. discloses each of the rotation center of the first rotation driving means and the second rotation driving means to be arranged so

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that the distance therebetween is necessarily determined on the basis of the size of an imaging region of the object (Col. 11, lines 29-32; Fig. 9).

With respect to Claim 5, Virta et al. discloses the rotation angle of the second rotation driving means to be determined so that each of the holding means and the first rotation driving means is necessarily located in a predetermined imaging region of the object (Col. 3, lines 61-67; Fig. 9).

With respect to Claim 7, Virta et al. discloses that the holding means is a rotative arm (Col. 3, lines 59-60); and the second rotation driving means (drive motor, Col. 7, lines 15-18; Figs. 4-7C, #22) is rotatable around a center of rotation of the rotative arm on a locus of movement simulating the shape of the imaging region of the object (see Figure 9), positions the local x-ray irradiating region in the first imaging mode (Col. 3, lines 9-23), and adjusts the imaging direction in the combination of the position of the irradiating region and a rotation angle of the rotative arm in the second imaging mode (Col. 7, lines 32-35).

With respect to Claim 8, Virta et al. discloses that the holding means is a rotative arm (Col. 3, lines 59-60); and the second rotation driving means (drive motor, Col. 7, lines 15-18; Figs. 4-7C, #22) is rotatable around a center of rotation of the rotative arm on a circumference simulating the shape of an imaging region of the object, and has a mechanism for varying the diameter of the locus of movement of the center of the first rotation driving means (as shown in Figs. 7A-7C & 10B).

With respect to Claim 9, Virta et al. discloses locally repeating the first imaging mode plural times along the imaging region of the object with the second rotation driving means, image data in the first imaging mode over the imaging region of the object are acquired, and a panoramic image over the imaging region (Col. 7, lines 32-

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35), a tomographic image or a three-dimensional image of an arbitrary cross section of the object is reconstructed from the image data (Col. 3, lines 20-24).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Virta et al. as applied to Claim 1 above, and further in view of Some et al. (5,841,148).

Virta et al. teaches all the characteristic features of the invention as recited above.

Virta et al. fails to teach the correction due to differences in the distance between the locus of movement of the center of the first rotation driving means and each imaging region of the object, which are corrected by an image calculating process.

Some et al. teaches the correction due to differences in the distance between the locus of movement of the center of the first rotation driving means and each imaging region of the object, which are corrected by an image calculating process (Col. 4, line 66 to Col. 5, line 18).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the x-ray CT apparatus taught by Virta et al. by incorporating the feature taught by Some et al.

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One would have been motivated to make this modification because the rotation and movement correction and enlargement/reduction magnification correction in the image data will yield a more accurate image of the subject (Col. 4, line 66 to Col. 5, line 18) as implied by Some et al.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mona M. Sanei whose telephone number is (571) 272-8657. The examiner can normally be reached on Monday through Friday, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Mona Sanei*

MS

  
EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER

*K*